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SEMICONDUCTOR DEVICE FOR DRIVING OF ACTIVE MATRIX TYPE LIQUID
CRYSTAL DISPLAY ELEMENT AND PRODUCTION THEREFOR

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ABSTRACT

PURPOSE: To enable high-speed driving by simultaneously and monolithically forming the switching TFTs of picture element parts of polycrystalline silicon TFTs and forming peripheral driving circuits of single crystal silicon TFTs.

CONSTITUTION: Recessed parts 202, 202' are provided on an insulating substrate 101. After a silicon nitride film is deposited over the entire surface, the silicon nitride film is etched away in such a manner that the film remains over the entire part of the bases 203 of the recessed parts 202 and leaves dots 203' at nearly the center of the bases thereof of the recessed parts 202'. The polycrystalline silicon 204 is grown in the recessed parts 202 and the single crystal silicon 204' in the recessed parts 202' by using a vacuum epitaxial growth device. The picture element switches 103 are formed of the polycrystalline silicon TFTs on the polycrystalline silicon 204. The peripheral driving circuits (horizontal shift registers 104, buffers 105, vertical shift registers 106) are formed of the single crystal silicon TFTs on the single crystal silicon 204'.

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Semiconductor driving device for active matrix type liquid crystal display element - has switching FET of image element formed on polycrystalline silicon@ with peripheral driving circuits on single crystalline silicon@

Patent Assignee: CANON KK (CANO)

Number of Countries: 001 Number of Patents: 001

Patent Family:

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Patent Details:

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Abstract (Basic): JP 5134272 A

The semiconductor device switches FET of image element part and other peripheral driving circuits, forming them monolithically on the same base plate, forming the switching FET of the image element part on polycrystalline Si, and forming the peripheral driving circuits on single crystalline Si.

Semiconductor device mfr. comprises forming simultaneously the polycrystalline Si and the single crystalline Si monolithically on the same baseplate.

USE/ADVANTAGE - Polycrystalline Si and single crystalline Si are simultaneously formed, and a semiconductor driving device for active matrix type LC element is obtd.

Dwg.0/4

Title Terms: SEMICONDUCTOR; DRIVE; DEVICE; ACTIVE; MATRIX; TYPE; LIQUID; CRYSTAL; DISPLAY; ELEMENT; SWITCH; FET; IMAGE; ELEMENT; FORMING; POLYCRYSTALLINE; SILICON; PERIPHERAL; DRIVE; CIRCUIT; SINGLE; CRYSTAL; SILICON

Derwent Class: L03; P81; U14

International Patent Class (Main): G02F-001/136

International Patent Class (Additional): G02F-001/1345

File Segment: CPI; EPI; EngPI